

LA-3260, LA-3560 and LA-3570 Sound Level Meter

Measures L_{Aeq} (or L_x) every **10 Minutes** for **24 Hours** and Stores Data
Automatically

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When measuring road traffic noise or the like, it is required to continuously measure the noise for a long time, e.g., 24 hours, from 6:00 AM until 6:00 AM of the next day. This manual describes the operation procedures to measure and automatically store road traffic noise of L_{Aeq} (or L_X) for 24 hours at an interval of 10 minutes, as an example.

■ Basic concept of operation

As it is typically the case, the LA-3000 series Sound Level Meter displays not only instantaneous values such as L_A on the screen, but also other calculated values including L_{Aeq} , L_{AMAX} , L_{MIN} , and L_N . The display of instantaneous measurement values will be updated every 1 second.

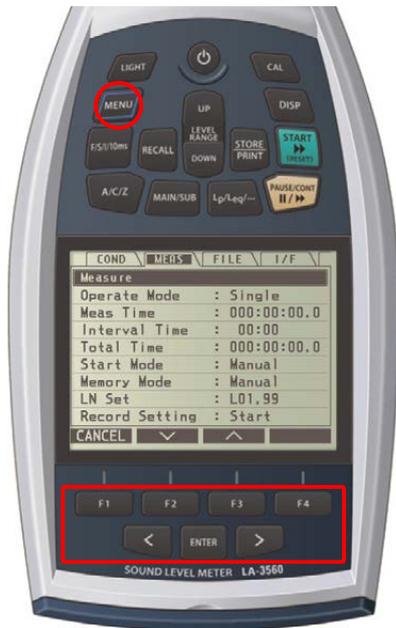
On the other hand, calculated values are displayed only after the {START} button is pressed, when it starts calculation using the “Measure Time” to be specified from a menu. In this manual, these are distinguished by using the terms of “instantaneous measurement” and “calculated measurement”.

In the following operation procedures, {} indicates a button on the panel, e.g., {MENU}, <> indicates each menu item, e.g., <MEAS>, and [] indicates the selected menu item, e.g., [Meas Time].

■ Measurement conditions

| | |
|---------------------------------------|--------------------------------|
| Measurement start time | AM 6:00 |
| Total measurement time | 24 hours |
| Measurement time | 10 minutes |
| Time weighting characteristics | FAST (factory default setting) |
| Frequency characteristics | A (factory default setting) |

■ Buttons to be used in menu operation



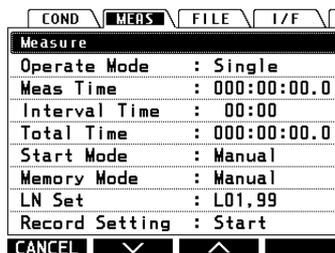
1. Press the {MENU} button on the measurement screen to open the menu screen. Press the {MENU} button again while the menu screen is displayed, the screen is return to the measurement screen.
2. Use the four arrow buttons, i.e., {F2} for down, {F3} for up, { < } for left, and { > } for right, to move the cursor to the item to be selected.
3. When entering a value, use the {F2} (down) and {F3} (up) buttons to select a numerical value and { < } and { > } buttons to select the digit.
4. Press the {ENTER} button to confirm the selected item and the setting value.

■ Operation Procedures

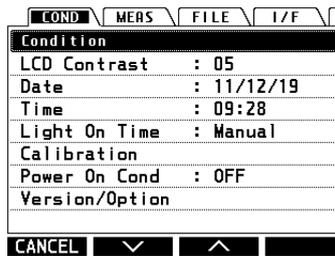
-1 Starting up in the factory default condition

This procedure starts up the device in the factory default setting. The setting is initialized to the frequency characteristic “A,” time weighting characteristics “FAST,” “instantaneous measurement,” and “manual memory” configuration.

- (1) Press the {Power On} button () to turn on the device.
- (2) Press the {MENU} button to open the menu screen. The <MEAS> screen will open.

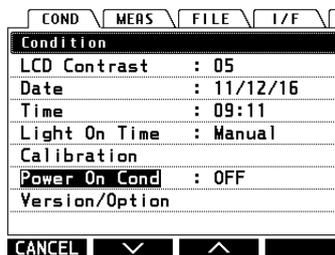


(3) Press the {<} button to move to the <COND> menu to open the Condition screen.

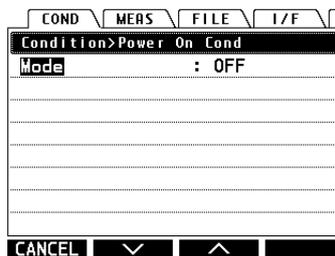


If the [Power On Cond] is OFF, go to procedure (8).

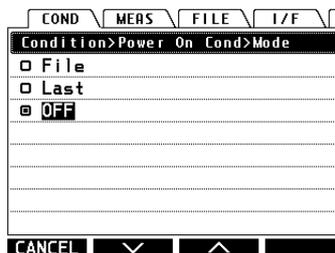
(4) Press the {F2} (down) button to move to the [Power On Cond] menu.



(5) Press the {ENTER} button.



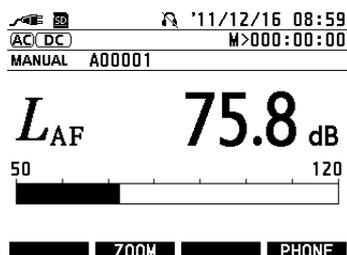
(6) Select [Mode] and press the {ENTER} button.



(7) Press the {F2} (down) button to select [OFF] and press the {ENTER} button.

(8) Press the {MENU} button again to return to the measurement screen.

- (9) Press the {Power On} button () to turn off the device. Then, after a while, turn the power on again. The device will be started up in the factory default setting.

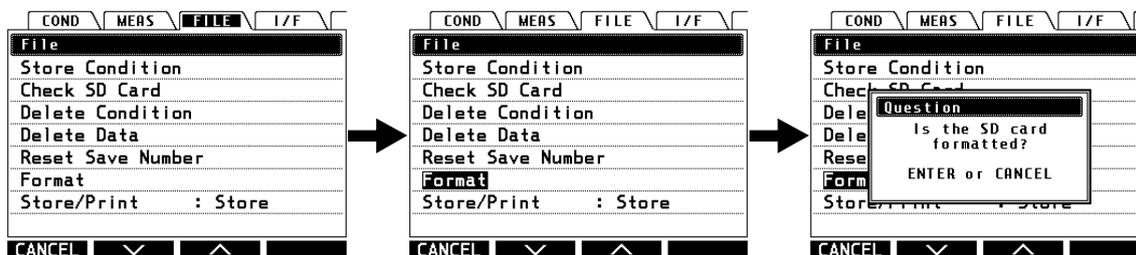


As the basic rule in the following procedures, use the arrow buttons, i.e., {<}, {>}, {F2} (down), and {F3} (up), to move to the desired item or change the value and then press the {ENTER} button to confirm the setting.

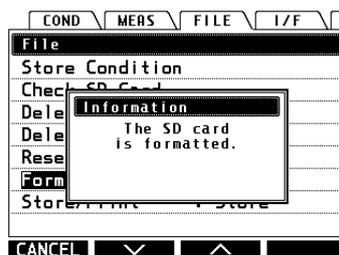
-2 Clearing all data in the SD card

This procedure clears all the record files. This operation is not required when files are to be additionally saved in the SD card. Be careful as this operation will clear all data in the SD card.

- (1) Press the {MENU} button to open the menu screen, select <FILE> and then [Format], and press the {ENTER} button.



When “ENTER or CANCEL” pop up window is displayed, press the {ENTER} button. The “The SD card is formatted” message will be displayed. This message means that all the files recorded in the SD card have been cleared.



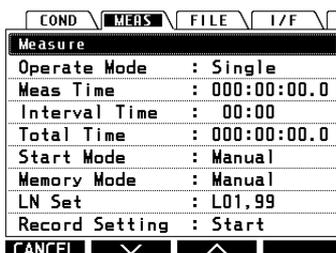
If the {F1} (cancel) button is pressed, the card will not be formatted.

- (2) Press the {MENU} button to return to the measurement screen.

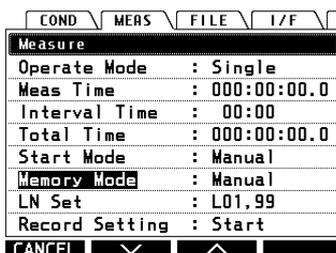
-3 Setting the memory mode to “AUTO (AT)”

In the “Manual” memory mode, the data will be saved only once when the {STORE} button is pressed. On the other hand, in the “Auto” memory mode, the data will be automatically saved after the specified “Measurement Time” has passed, and the measurement will be repeated at the specified interval until the time reaches the “Total Time”.

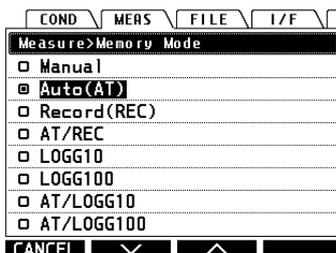
- (1) Press the {MENU} button to open the <MEAS> menu screen.



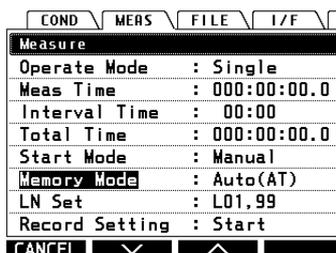
- (2) Press the {F2} (down) button to move to [Memory Mode].



- (3) Press the {ENTER} button.



- (4) Press the {F2} (down) button to select [Auto (AT)] and press the {ENTER} button.



-4 Setting measurement time to 10 minutes (000:10:00.0), interval time to 10 minutes (00:10), and total time to 24 hours (024:00:00.0)

- (1) Press the {MENU} button to open the menu screen, select <MEAS>, [Meas Time], and set [000:10:00.0]. This operation will set the measurement time to 10 minutes. When the 10 minutes period has passed, the measurement will automatically be terminated.

| COND | MEAS | FILE | I/F |
|----------------|---------------|------|-----|
| Measure | | | |
| Operate Mode | : Single | | |
| Meas Time | : 000:00:00.0 | | |
| Interval Time | : 00:00 | | |
| Total Time | : 000:00:00.0 | | |
| Start Mode | : Manual | | |
| Memory Mode | : Manual | | |
| LN Set | : L01,99 | | |
| Record Setting | : Start | | |
| CANCEL | ▼ | ▲ | ▶ |

Press {ENTER} and use {>} to move to the digit of 10 minutes

| COND | MEAS | FILE | I/F |
|----------------|---------------|------|-----|
| Measure | | | |
| Operate Mode | : Single | | |
| Meas Time | : 000:00:00.0 | | |
| Interval Time | : 00:00 | | |
| Total Time | : 000:00:00.0 | | |
| Start Mode | : Manual | | |
| Memory Mode | : Manual | | |
| LN Set | : L01,99 | | |
| Record Setting | : Start | | |
| CANCEL | ▼ | ▲ | ▶ |

| COND | MEAS | FILE | I/F |
|----------------|---------------|------|-----|
| Measure | | | |
| Operate Mode | : Single | | |
| Meas Time | : 000:10:00.0 | | |
| Interval Time | : 00:00 | | |
| Total Time | : 000:00:00.0 | | |
| Start Mode | : Manual | | |
| Memory Mode | : Manual | | |
| LN Set | : L01,99 | | |
| Record Setting | : Start | | |
| CANCEL | ▼ | ▲ | ▶ |

Use {F2} (down) and {F3} (up) to set the value

Press the {ENTER} button to complete the setting.

- (2) In the menu screen, set [Interval Time] to [00:10]. This operation will set the interval between repetitive measurements to 10 minutes. When this setting is used, the measurement will be performed for the interval of 10 minutes at an interval of 10 minutes and the resulting data will be saved.

| COND | MEAS | FILE | I/F |
|----------------|---------------|------|-----|
| Measure | | | |
| Operate Mode | : Single | | |
| Meas Time | : 000:10:00.0 | | |
| Interval Time | : 00:10 | | |
| Total Time | : 000:00:00.0 | | |
| Start Mode | : Manual | | |
| Memory Mode | : Auto(AT) | | |
| LN Set | : L01,99 | | |
| Record Setting | : Start | | |
| CANCEL | ▼ | ▲ | ▶ |

- (3) In the menu screen, set [Total Time] to [024:00:00.0]. This operation will set the total time to 24 hours. When this setting is used, the repetitive measurement will be automatically terminated after 24 hours have passed.

| COND | | MERS | | FILE | | I/F | |
|----------------|---|-------------|---|------|--|-----|--|
| Measure | | | | | | | |
| Operate Mode | : | Single | | | | | |
| Meas Time | : | 000:10:00.0 | | | | | |
| Interval Time | : | 00:10 | | | | | |
| Total Time | : | 024:00:00.0 | | | | | |
| Start Mode | : | Manual | | | | | |
| Memory Mode | : | Auto(AT) | | | | | |
| LN Set | : | L01,99 | | | | | |
| Record Setting | : | Start | | | | | |
| CANCEL | | ↓ | ↑ | | | | |

Press the {ENTER} button to complete the setting.

-5 Starting measurement

There are four different modes to start measurement, i.e., the “Manual” mode to start measurement when the {START} button is pressed, “Count Down” mode to start measurement after a specified period of time has passed since the {START} button is pressed, “Timer” mode to start measurement at a specified time, and “Level” mode to start measurement when a specified level has been exceeded.

Here, the {Timer} start function is selected to start the overall measurement at 6:00.

Move to [Start Mode]

| COND | | MERS | | FILE | | I/F | |
|----------------|---|-------------|---|------|--|-----|--|
| Measure | | | | | | | |
| Operate Mode | : | Single | | | | | |
| Meas Time | : | 000:10:00.0 | | | | | |
| Interval Time | : | 00:10 | | | | | |
| Total Time | : | 024:00:00.0 | | | | | |
| Start Mode | : | Manual | | | | | |
| Memory Mode | : | Auto(AT) | | | | | |
| LN Set | : | L01,99 | | | | | |
| Record Setting | : | Start | | | | | |
| CANCEL | | ↓ | ↑ | | | | |

Press {ENTER}



| COND | | MERS | | FILE | | I/F | |
|------------------------------|---|--------|---|------|--|-----|--|
| Measure>Start Mode | | | | | | | |
| Mode | : | Manual | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| CANCEL | | ↓ | ↑ | | | | |

Press {ENTER}



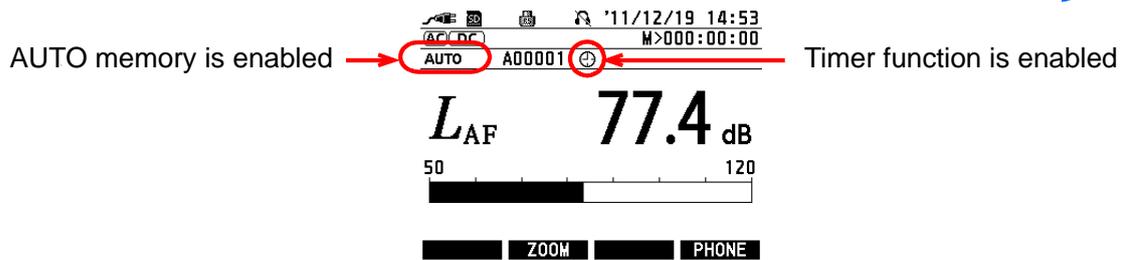
Use {F3} (down) to select Timer

| COND | | MERS | | FILE | | I/F | |
|------------------------------|---|-------|---|------|--|-----|--|
| Measure>Start Mode | | | | | | | |
| Mode | : | Timer | | | | | |
| Timer | : | 06:00 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| CANCEL | | ↓ | ↑ | | | | |

Press {ENTER}

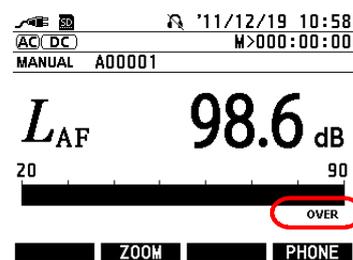
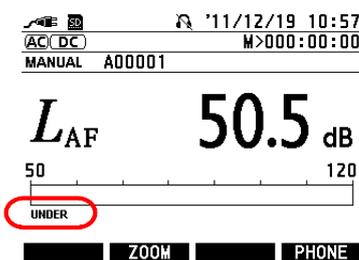


| COND | | MERS | | FILE | | I/F | |
|---|--|------|---|------|--|-----|--|
| Measure>Start Mode>Mode | | | | | | | |
| <input type="checkbox"/> Manual | | | | | | | |
| <input type="checkbox"/> CountDown | | | | | | | |
| <input checked="" type="checkbox"/> Timer | | | | | | | |
| <input type="checkbox"/> Level | | | | | | | |
| | | | | | | | |
| CANCEL | | ↓ | ↑ | | | | |



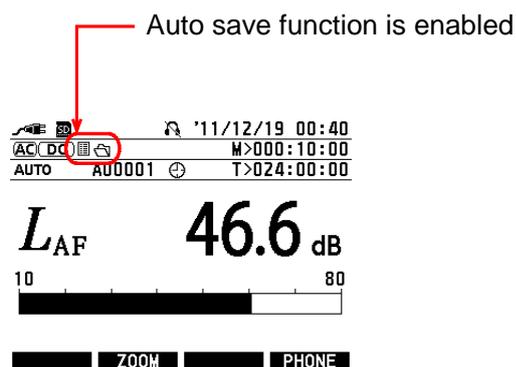
-6 Starting measurement

- (1) Adjust the level range of the Sound Level Meter using the {LEVEL RANGE UP} and {LEVEL RANGE DOWN} buttons according to the actual noise level to be measured at the site. Select a level range where neither “UNDER” nor “OVER” is indicated.

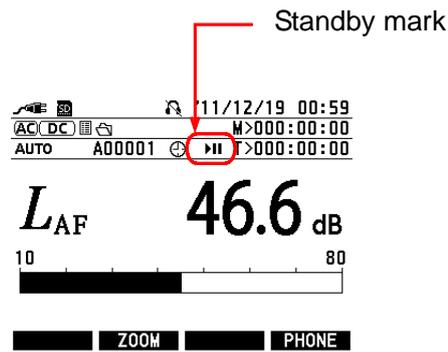


If any “UNDER” or “OVER” condition has been occurred during measurement, it will be indicated when the device is operated to display calculated values.

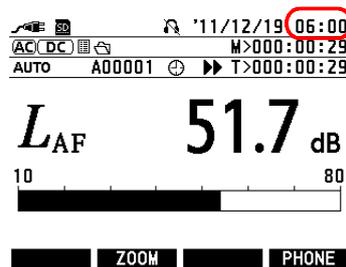
- (2) Press the {STORE/PRINT} button. This operation enables the automatic save function. If this function is not enabled, no calculated data will be saved even if measurement is made. Be sure to enable this function.



- (3) Press the {START} button to start measurement. The following standby mark (▶▶) will be displayed.

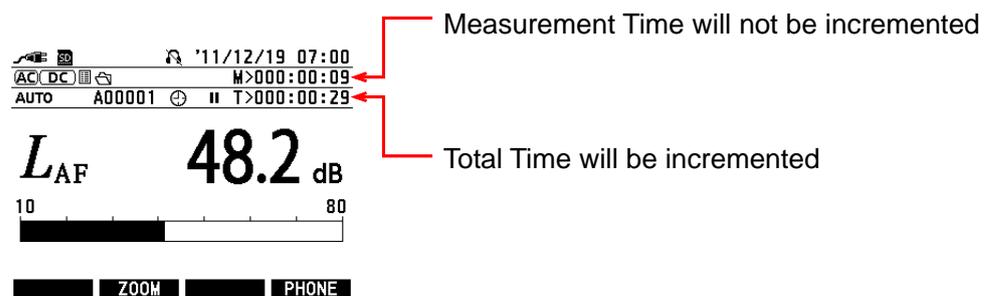


The measurement will be started at 6:00. The 10 minutes measurement is repeated for 24 hours, and it will be terminated. The data obtained at 10 minutes interval will be saved in the SD card.



-7 Suspending calculation measurement

Pressing the {PAUSE/CONT} (||/▶▶) button will suspend the measurement.



Note:

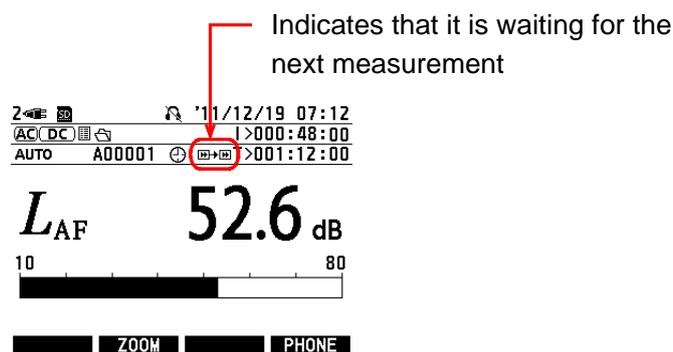
- Pressing the {START} button while the measurement is suspended () will terminate the measurement to automatically save the results, and a new measurement will be initiated. The automatic save function will also be cancelled, the automatic save mark () changes to the standby mark (), and the measurement will be suspended until 6:00 AM, which is the specified starting time. Note that remaining in this condition will not be able to save any measurement data. To recover from this situation, suspend the measurement and press either the {MENU}, {UP/DOWN}, or {A/C/Z} button to cancel all measurements.
- Pressing the {STORE/PRINT} button while the automatic save mark () is displayed will clear the symbol and the automatic save function will be cancelled. If calculated measurement is performed while the automatic save symbol is turned off, no data will be saved although the measurement will be made.

-8 Canceling calculation measurement

While the measurement is suspended, pressing either the {MENU}, {UP/DOWN}, or {A/C/Z} button will cancel all measurements. If calculated measurement is performed while the automatic save symbol is turned off, no data will be saved although the measurement will be made.

-9 Display while waiting for the next measurement

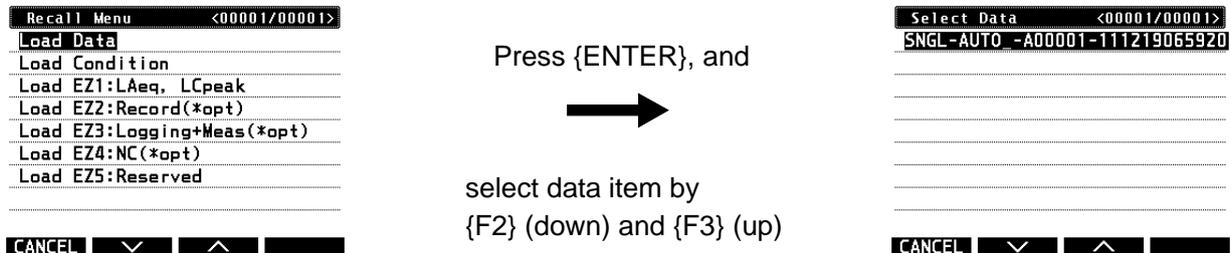
While the example used here assumes continuous measurement/data saving because 10 minutes measurement is repeated at an interval of 10 minutes, if the interval time is set to 1 hour and the measurement time is set to 10 minutes, the device will standby and wait until the next measurement after the measurement is made for 10 minutes.



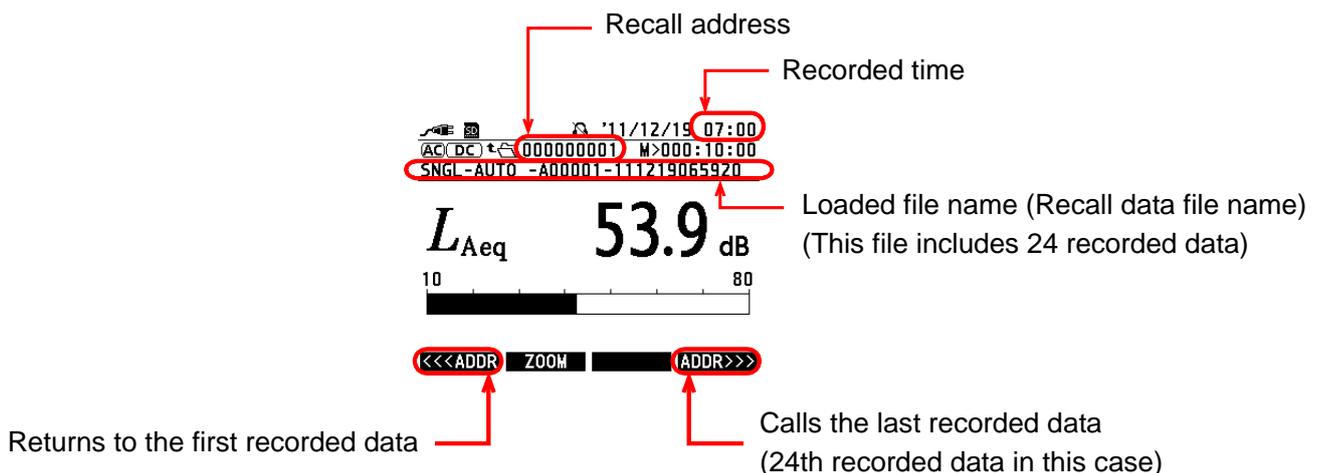
In the above example display, the indication of [I>000:48:00] indicates the remaining time before the next measurement is started. In this case, the measurement will have taken place from 7:00 to 7:10, and it will wait until 8:00 for the next measurement.

-10 Reproducing (display) of automatically (AUTO) saved data

- (1) Press the {RECALL} button to open the menu screen, select [Load Data], and press the {ENTER} button. Select the data to be displayed using the {F2} / {F3} (down/up) buttons and press the {Enter} button.



- (2) Upon returning to the measurement screen, recall mark and the file name will be displayed. It indicates that the display is showing the recalled data. To change to L_{Aeq} or L_{AMAX} , press the {Lp/Le...} button.

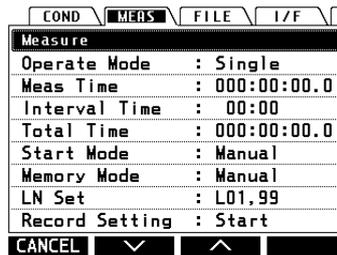


- (3) You can switch to the list display by pressing the {DISP} button.
- (4) Pressing the {RECALL} button again will clear the file name and it returns to the measurement screen.

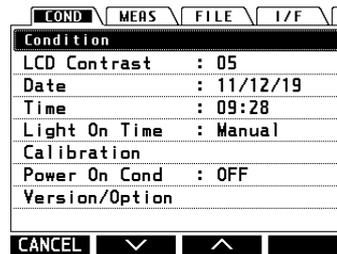
-11 Starting up the system with the saved setting condition at the last power off

The following steps are used to automatically recall and set the current measurement condition when power is turned on the next time.

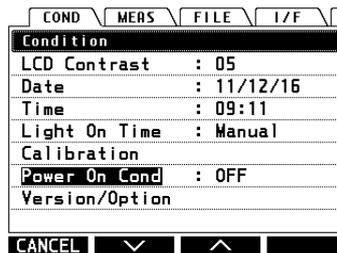
- (1) Press the {MENU} button to open the menu screen. The <MEAS> screen will open.



(2) Press the {<} button to move to the <COND> menu to open the Condition screen.

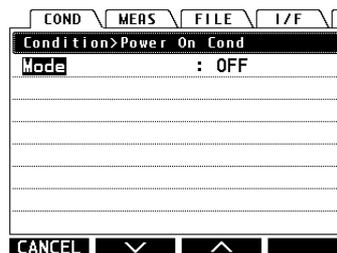


(3) Press the {F2} (down) button to move to the [Power On Cond].

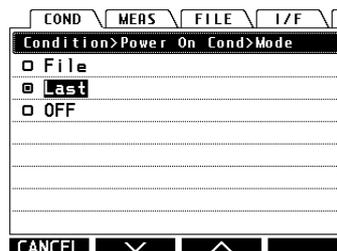


(4) Press the {ENTER} button.

(5) Select [Mode] and press the {ENTER} button.



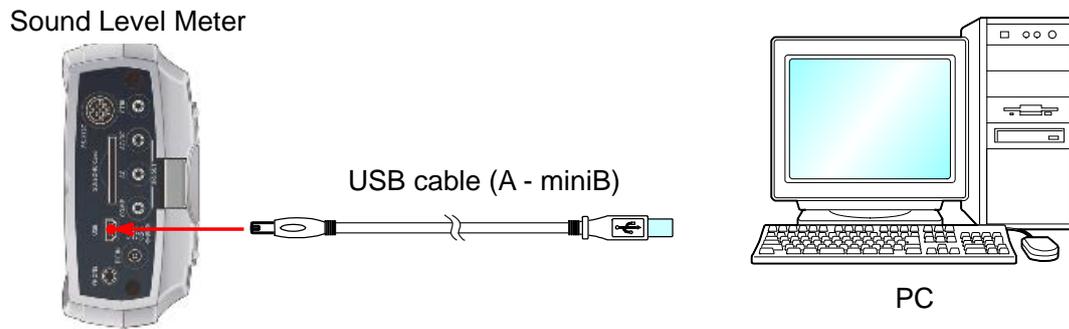
(6) Press the {F2} (down) button to select [Last] and press the {ENTER} button.



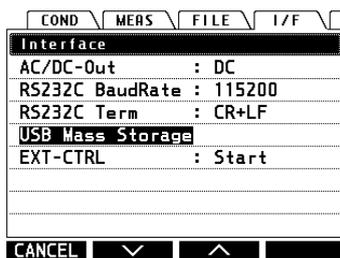
-12 Loading stored data to a personal computer

Two methods are available for connecting to a personal computer, i.e., one is to use a USB cable (A - miniB), as an external storage device (removable disk), and the other is to directly read the content of the SD card.

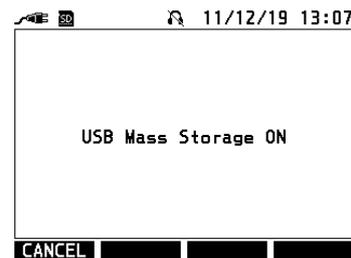
<Loading data from the Sound Level Meter as an external storage device>



- (1) Press the {MENU} button to open the menu screen, select <I/F> and [USB Mass Storage], and press the {ENTER} button. "USB Mass Storage ON" is displayed on a screen.



Select [USB Mass Storage] and press {Enter}



- (2) Use a USB cable to connect the Sound Level Meter to the PC.

The files are stored in the CSV format.

End